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EXAMINER	
CABRERA, ZOILA E	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/646,402	KIESEL ET AL.	
	Examiner	Art Unit	
	Zoila E. Cabrera	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Final Rejection

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-25 are presented for consideration.

The rejection for claim 1-25 is maintained.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haseley et al. (US 5,602,757)** in view of **Hays et al. (US 6,330,525).**

Claims are rejected under 35 U.S.C. 102(b) as being anticipated by **Haseley et al. (US 5,602,757)**.

Haseley discloses an electronic fingerprint apparatus for a machine, comprising:

- an automation component comprising a controller for controlling movements of at least one component of the machine (Col. 5, lines 17-26, i.e., action commands may be generated by the microcontroller to a monitored machine), the automation component adapted for capturing electronic fingerprints representative of a state of the machine (Col. 5, lines 4-9; Col. 7, lines 14-17 and

lines 23-28, i.e., vibration signatures are generated from collected vibration data. Please note that "signature" or "footprint" are measurements in a machine that are characteristic of and document the behavior, or vibration, of the machine, which is the definition of "electronic fingerprints" in Specification, Page 1 of the present invention; see also Col. 1, lines 17-20); and the automation component further comprising a fingerprint device for selecting for measurement a plurality of movements of the machine to generate an electronic fingerprint that is representative of a condition of the machine (Col. 3, lines 22-26, i.e., sensor to measure vibration; Col. 5, lines 22-30, i.e., each sensor provides vibration data to produce vibration signatures which are used to monitor fault conditions of the machine).

As for claims 2-6, **Haseley** discloses,

- the automation component is **selected from the group consisting of** a numeric control, a motion controller, a programmable logic controller **or** an intelligent drive (Col. 4, lines 11-15, i.e. vibration monitoring system);
- the automation component and the corresponding engineering system provide a program platform/environment for the implementation of electronic fingerprints by an application engineer (Col. 6, lines 57-61; Col. 6, lines 8-19);
- an engineering system corresponding to the automation component, wherein implementation of the fingerprints is done by **at least one of** a configuration process in the engineering system and a programming process using a specific

API for the implementation of fingerprints (Col. 7, lines 13-16; Col. 4, lines 65-67);

- the start of capturing the fingerprints is done by **an action selected from the group consisting of** starting by local user via local HMI and starting by remote user via Ethernet/Internet; and starting based on an event evaluated in an application program running in the automation component (Col. 7, lines 13-16; Col. 6, lines 7-19 and lines 33-40);
- the apparatus is used for a **machine selected from the group consisting of** machine tools, packaging machines, a rubber-working machines; plastic-working machines; printing presses; woodworking machines; glassmaking machines; ceramic-working machines; stoneworking machines; textile machines; robotic manufacturing machines and material handling machines (Col. 3, lines 10-17).

As for claims 7 and 18, **Haseley** discloses,

- the fingerprint device and the automation component generate an electronic fingerprint that is generic to a type of machine tool that indicates a stable behavior of the machine tool (Col. 6, lines 50-53 and lines 22-28).

As for claims 8 and 19,

- the fingerprint device and the automation component generates an electronic fingerprint having a deviation from the stable behavior, thereby indicating an unstable behavior of the machine (Col. 6, lines 29-32 and lines 54-56; Col. 5, lines 22-30).

As for claims 9 and 20,

- the fingerprint device and the automation component generates a specific fingerprint of a particular production machine that is representative of a state of **at least one** the outputs of the particular production machine and the stable behavior of the machine (Col. 6, lines 22-28 and lines 50-53).

As for claims 10 and 21,

- a graphical user interface for displaying a graphical depiction of the electronic fingerprint (Col. 5, lines 1-4).

As for claims 11,

- the fingerprint device is adapted for generating a periodic electronic fingerprint that is developed from a snap shot of the state of the machine at a certain time (Col. 6, lines 57-58, i.e., vibration data is collected at user selected time intervals).

As for claims 12 and 22,

- an application for comparing the electronic fingerprints over time (Col. 7, lines 23-28 and lines 35-40).

As for claims 13 and 25,

- a memory for storing the electronic fingerprints as a database (Col. 7, lines 23-28, data memory 38. Please note that the same citations applied above to claim 1 apply as well for claim 25).

As for claims 15 and 24,

- a remote communication capability that couples the machine to a remote processor (Col. 4, lines 28-37).

As for claim 16,

- the electronic fingerprint is downloaded over the remote communication to the remote processor (Col. 4, lines 28-37, i.e., communication between a remote field monitor and the vibration monitoring system would allow transfer of vibration data).

As for claim 17, **Haseley** discloses a method for generating electronic fingerprints for measuring a state of a machine, the method comprising the steps of:

- selecting for measurement parameters associated with **at least one**-component of the machine (Col. 4, lines 59-65; Fig. 2, footprint or signature with parameters being frequency and velocity; Col. 5, lines 22-28; Col. 3, lines 24-26, sensors may be accelerometers or any other type of sensors used to measure vibration), that are representative of a condition of the machine (Col. 3, lines 22-26, i.e., sensor to measure vibration; Col. 5, lines 22-30, i.e., each sensor provides vibration data to produce vibration signatures which are used to monitor fault conditions of the machine); reading the selected set of parameters; and storing the read parameters (Col. 6, lines 65-67), thereby creating an electronic fingerprint representative of a condition of the machine (Col. 7, lines 13-16 and lines 22-28 and lines 35-40).

Haseley discloses most of the limitations of claims 1, 17 and 25 above, but fails to disclose some limitations of claims 1, 17, and 25 and the limitations of claims 14 and 23. However, **Hays** discloses such limitations as follows:

As for claim 1,

At least one type of movement from a plurality of different types of movements (Col. 22, lines 14-24 and lines 37-67);

determining which measurements of the machine will result in capturing electronic fingerprints representative of a state of the machine (Col. 22, lines 14-24 and lines 37-67);

the fingerprint device selects the at least one type of movement of the machine for measurement based on its determination of which plurality of movements, when measured, will reveal the electronic fingerprint that is representative of the condition of the machine (Co. 8, lines 60 to Col. 9, lines 27-29; Col. 22, lines 14-24 and lines 37-67).

As for claim 17,

determining, with the automation component, a set of parameters for measurement that will uniquely identify a condition of the machine, the parameters associated with at least one component of the machine(Co. 8, lines 60 to Col. 9, lines 27-29; Col. 22, lines 14-24 and lines 37-67; Col. 12, lines 45-54).

As for claim 25,

selecting, with the automation component, a set of parameters for measurement from a plurality of parameters corresponding to different types of movement of the at least one component of the machine that will uniquely identify a condition of the machine, the set of parameters associated with the at least one component of the machine and the plurality of parameters corresponding to different types of

movement of the at least one component of the machine; (Co. 8, lines 60 to Col. 9, lines 27-29; Col. 22, lines 14-24 and lines 37-67; Col. 12, lines 45-54).

Regarding claims 14 and 23,

a maintenance scheduler for scheduling maintenance of the machine based on a prediction of a failure of the machine based on the electronic fingerprint (Col. 10, lines 48-56; Col. 20, lines 13-22; Col. 6, lines 20-35, i.e., performance signatures).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the vibration monitoring system of **Haseley** with the diagnosing system of **Hays** because it would provide an improved system wherein data may be used to provide maintenance and continuous monitoring of machine health (Col. 6, lines 16-35).

Response to Arguments

3. Applicant's arguments filed May 29, 2007 have been fully considered but they are not persuasive.

Applicant argues, Page 6, that neither Haseley nor Hays, alone or in combination, teaches or suggest the automation component selects for measurement certain movement/parameters of the machine from a plurality of different types of movements to generate an electronic fingerprint representative of a condition of the machine. Examiner disagrees because Hay discloses such limitations (Co. 8, lines 60 to Col. 9, lines 27-29; Col. 22, lines 14-24 and lines 37-67; Col. 12, lines 45-54).

Applicant further argues, Page 7, that Hays relates only to a single type of movement, e.g., rotational movement of a pump. Examiner disagrees because Hays discloses that four secondary curves or condition signatures which permit confirmation of expected degraded pump components are included in the diagnosis method (Col. 22, lines 37-51, i.e., pressure sensor spectra, velocity and acceleration vibration spectra, bearing forces vs. pump flow rate curve, break hose power vs. pump flow rate curve). Therefore there is more than one type of machine movement.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning communication or earlier communication from the examiner should be directed to Zoila Cabrera, whose telephone number is (571) 272-3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached on (571) 272-3749. Additionally, the fax phones for Art Unit 2125 are (571) 273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

Zoila Cabrera
Primary Examiner
8/20/07

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